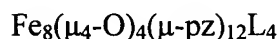


We claim:

1. A Fe(III) complex having paramagnetic and electron transfer properties comprising an iron cluster in a chemically inert shell, wherein said iron cluster comprises a Fe<sub>4</sub>O<sub>4</sub> cubane core which is stable over five oxidation states and wherein said chemically inert shell comprises four iron atoms and twelve bridging pyrazolato groups.
2. The Fe (III) complex of claim 1, wherein said complex comprises a contrast agent.

3. A paramagnetic compound having the formula:



where the portion of the compound identified as  $\mu_4\text{-O}$  is a quadruply bridging oxygen atom and  $\mu\text{-pz}$  is a bridging pyrazole ring, and the portion of the compound identified as L is a ligand.

4. The paramagnetic compound of claim 3, wherein said compound comprises a contrast agent.

5. The paramagnetic compound of claim 3, wherein said compound has electron transfer properties.

6. The paramagnetic compound of claim 3, wherein said bridging pyrazole rings each comprise a halogen or pseudo-halogen attached at the 4 position of the bridging pyrazole ring wherein said halogen or pseudo-halogen is selected from the group consisting of F, Cl, Br, I and CN.

7. The paramagnetic compound of claim 3, wherein said bridging pyrazole rings each comprise an organic substituent attached at the 4 position of the bridging pyrazole rings wherein said organic substituent is selected from group consisting of  $\text{C}_n\text{H}_{2n+1}$ ,  $\text{C}_n\text{H}_{2n-1}$ ,  $\text{C}_n\text{H}_{2n-3}$ ,  $\text{C}_n\text{H}_{2n}\text{X}$ ,  $\text{C}_n\text{H}_{2n-2}\text{X}$ ,  $\text{C}_n\text{H}_{2n-4}\text{X}$  where n is less than 40 and where X is selected from the group consisting of F, Cl, Br, I, CN, OH,  $\text{NH}_2$ , CHO.

8. The paramagnetic compound of claim 7, wherein n is less than 20.
9. The paramagnetic compound of claim 3, wherein said bridging pyrazole rings each comprise an aryl group attached at the 4 position of the pyrazole ring.
10. The paramagnetic compound of claim 3, wherein said ligand is selected from the group consisting of F, Cl, Br, SCN, OCN, OPh, Ph, and py, where Ph is a phenyl group and py is a pyridine group.

11. A Fe(III) complex having paramagnetic and electron transfer properties comprising a metal cluster in a chemically inert shell, wherein said metal cluster forms a cubane core having the formula  $\text{Fe}_4\text{O}_4$  and is stable over five oxidation states.

12. The Fe(III) complex of claim 11, wherein said chemically inert shell comprises four iron atoms, twelve bridging pyrazolato groups and four ligands.

13. The Fe(III) complex of claim 12, wherein said twelve bridging pyrazolato groups each comprise a halogen or pseudo-halogen attached at the 4 position of the bridging pyrazole rings wherein said halogen or pseudo-halogen is selected from the group consisting of F, Cl, Br, I and CN.

14. The Fe(III) complex of claim 13, wherein said four ligands each comprise a terminal ligand selected from the group of F, Cl, Br, SCN, OCN, OPh, Ph, and py, where Ph is a phenyl group and py is a pyridine group.

15. The Fe(III) complex of claim 13, wherein said four ligands each comprise a bridging ligand selected from the group consisting of pyrazine and bipyridine.

16. The Fe(III) complex of claim 13, wherein said four ligands each comprise a metal.